

# FSEM 1111 Computer Security – from a Free Software Perspective

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# Scientific Writing Style

- Exact
- Clear
- Compact
- Smooth
- Objective

# Exact Writing

- Make certain that every word means exactly what you want to express.
- Choose synonyms with care.
- Avoid vague expressions which are typical for spoken language (“quite large”)
- Make it clear what the pronouns refer to (this shows..., in that context...)
- Avoid antropomorfisms

# Clear Writing

- Divide the text logically into sections paragraphs and sentences
- Use illustrative titles for sections
- Write a brief introductory paragraph at the beginning of major sections
- Place adjectives and adverbs as close as possible to modified words
- Express decimal numbers with suitable precision

# Compact Writing

- Say only what needs to be said!
- Short words and short sentences are easier to comprehend
- Avoid too detailed descriptions (does the reader have to care about those details?)
- Avoid mentioning obvious things (but do not assume that everyone agrees with you on what is obvious)

# Smooth Writing

- Stay within the chosen tense (if possible)
- Pronouns should agree with their referant in number and gender
- Use transitional words to maintain the flow of thought (However, In contrast, Furthermore, Finally, Consequently, Then, Next, ...)
- Avoid using italics for emphasis, use syntax instead
- Do not overuse metaphors

# Objective Writing

- Use 3rd person rather than 1st person
- Use emotionally neutral expressions
- Try writing in politically correct style without being obvious about it (avoid “his/her”, “man and women”)
- Avoid giving your opinion. Scientific writing is based on facts.

# Figures

- Graphs, pictures and drawings are called **figures**
- There are never too many figures and tables
- All figures and tables must be referred to in the text
- Tables and figures should not be trivial (tables must have more than two entries)
- Avoid repeating the same data in several places



# Positioning

- Position tables/figures close to the referring text
- If the reader is likely to compare multiple tables/figures; position them together
- Positioning tables in  $\text{\LaTeX}$  is tricky, read the textbook!
- Each figure/table must have a caption!
- Refer to figures/tables by number.

# Vector Graphics

- Use vector graphics (eps, pdf, fig, svg, xypic, metafont)
- Do a test-print (on a good printer)

# Figures in L<sup>A</sup>T<sub>E</sub>X

```
\begin{figure}  
  \begin{center}  
    \includegraphics{q} % q.pdf exists  
  \end{center}  
  \caption{A question mark.}  
  \label{fig:a_label}  
\end{figure}
```

# Figures in $\LaTeX$



Figure 1: A question mark.

# Figures in $\text{\LaTeX}$

```
\begin{figure}  
  \begin{center}  
    \includegraphics[scale=0.5]{q} % q.pdf exists  
  \end{center}  
  \caption{A tiny question mark.}  
  \label{fig:b_label}  
\end{figure}
```

# Figures in L<sup>A</sup>T<sub>E</sub>X



Figure 2: A question mark.

# Referring to Figures and Tables

Use

- “Figure~\ref{fig:labelname}”
- “Table~\ref{table:labelname}”
- You can use any string for labels
- The prefix is just a good habit (not enforced)

# Graphics inside of $\text{\LaTeX}$

- `lstlistings` is an environment for source code
- `xypic` is for arrow diagrams (including knots)
- `metauml` is for UML diagrams
- `verbatim` to print as-is
- There are many more! <http://www.ctan.org/>

We will discuss some of these in the 8th week!



# Preview

Typesetting this

$$P_{a,b} := \frac{\prod_{(a,o) \in E} |L_a - L_o| \cdot \prod_{(b,p) \in E} |L_b - L_p|}{\prod_{(a,o) \in E} |L_b - L_o| \cdot \prod_{(b,p) \in E} |L_a - L_p|}$$

– is a piece of cake in  $\text{\LaTeX}$ .

# Itemized Lists

```
\begin{itemize}
  \item{lstlistings is an environment for source code}
  \item{xypic is for arrow diagrams (including knots)}
  \item{metauml is for UML diagrams}
  \item{verbatim to print as-is}
  \item{There are many more! {\tt http://www.ctan.org/}}
\end{itemize}
```

# Text formatting

- tt – teletype (type writer)
- em – emphasis (usually italics)
- it – italics
- bf – bold font
- There are more  $\Rightarrow$  textbook!

# Enumerated Lists

```
\begin{enumerate}  
  \item{First}  
  \item{Second}  
  \item{Third}  
  \item[Text]{Custom}  
\end{enumerate}
```

# Result

1. First

2. Second

3. Third

Text Custom

# Descriptive Lists

```
\begin{description}  
  \item[First]{Study}  
  \item[Second]{Study more}  
  \item[Third]{Study more}  
\end{description}
```

# Result

**First Study**

**Second Study more**

**Third Study more**

# Text size

- tiny
- small
- normal
- large
- huge
- LARGE



# Dashes in L<sup>A</sup>T<sub>E</sub>X

- Single-dash is for hyphenation
- Use \- for manual hyphenation
- Use two dashes for a minus sign:  $a - b$  (or better, use math mode:  $a - b$ )
- Use three dashes for dashes — they usually come in pairs — but avoid them if you are not sure about how to use them

# Tables in L<sup>A</sup>T<sub>E</sub>X

Name	Present	Age
Alice	yes	14
Bob	no	7
Carol	yes	21
Dave	yes	103

```

\begin{tabular}{l|l|c|r}
  Name & Present & Age & \\ \hline \hline
  Alice & yes & 14 & \\ \hline
  Bob & no & 7 & \\ \hline
  Carol & yes & 21 & \\ \hline
  Dave & yes & 103 & \\ \hline
\end{tabular}

```

# Tables in L<sup>A</sup>T<sub>E</sub>X

Name	Present	Age
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```

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```

# Tables in L<sup>A</sup>T<sub>E</sub>X

Name	Present	Age
Alice	yes	14
Bob	no	7
Carol	yes	21
Dave		103

```

\begin{tabular}{|l||c|r|}
\hline
Name & Present & Age \\ \hline
Alice & yes & 14 \\ \hline
Bob & no & 7 \\ \hline
Carol & & 21 \\ \cline{1-1} \cline{3-3}
Dave & \raisebox{1.5ex}{-1.5ex}{yes} & 103 \\ \hline
\end{tabular}

```

You can find more details about tables in the textbook!

# Footnotes

- For footnotes, use the `\footnote` command<sup>1</sup>

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<sup>1</sup>Read the textbook for restrictions on the use of footnotes in figures.

# Questions



# Exercise

Add some tables to your CV in  $\text{\LaTeX}$ . For example, you could add a table to list your employment and educational activities by year. You can also use tables to achieve certain formatting goals.

Explore various formatting styles to polish the look of your CV (start by centering your name on top). Use `\today` to date it.